

Design and Access Statement

Solar PV Carports, Abermorlais Car Park, Merthyr Tydfil

Full planning permission Application Reference: PP-14867447
Applicant: Merthyr Tydfil County Borough Council



Document Control

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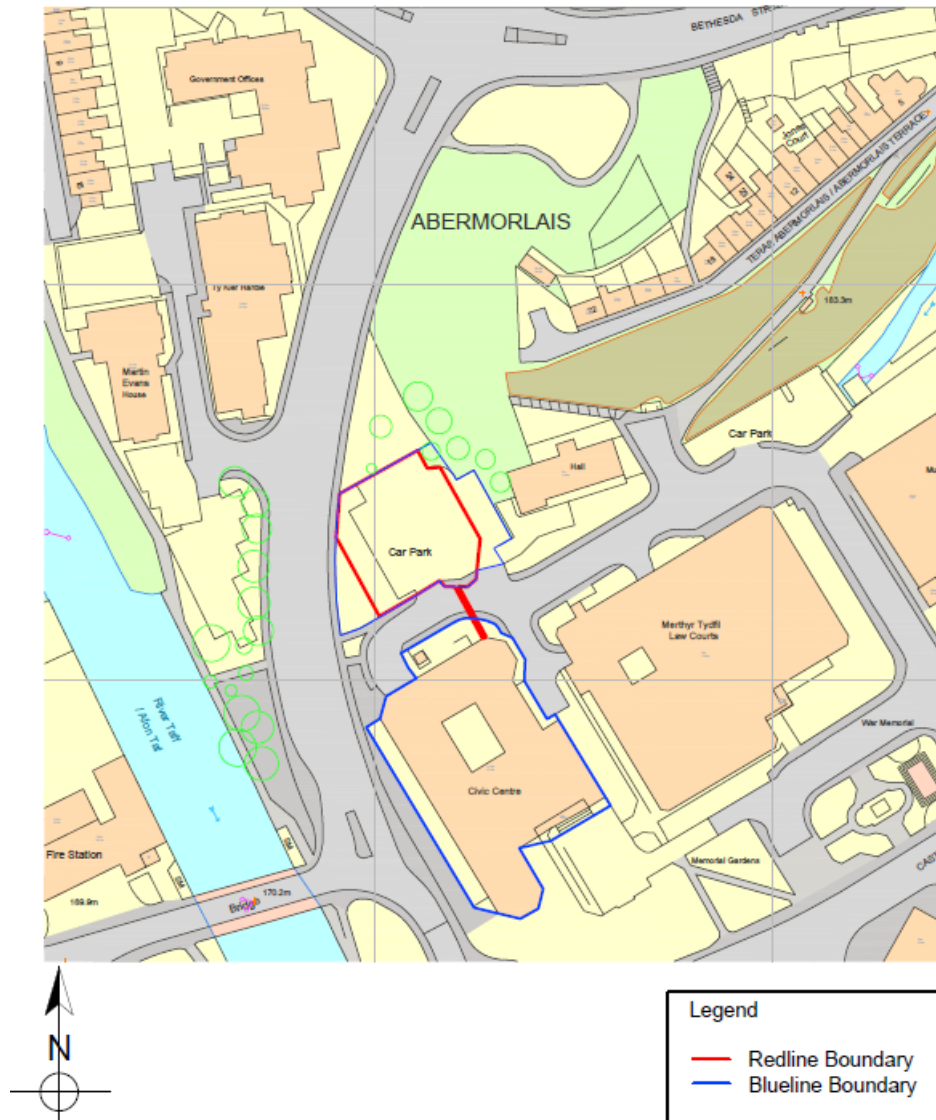
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1 Introduction

This Design and Access Statement (DAS) has been prepared to support a planning application for the installation of solar photovoltaic (PV) carports at **Abermorlais Car Park (Rear of Civic Centre), Glebeland Place, Merthyr Tydfil, CF47 8BH**.

The application site is identified on the submitted Location Plan and comprises an existing car park serving the Civic Centre.



This DAS has been prepared in accordance with Welsh planning requirements and provides a clear explanation of the design principles, site context, and access considerations of the proposed development.

Response to Pre-Application Advice

The design has been reviewed and amended following the Council's pre-application response (reference PAN/26/0013). The principle of the development was considered acceptable, subject to the resolution of a number of detailed matters relating principally to visual impact, parking and manoeuvring, ecology and structural design.

The revised proposal responds directly to the matters raised through a number of design changes and additional supporting information, including:

- removal of the raised SuDS planters from beneath the central carport;
- replacement with a permeable pavement/SuDS attenuation solution and ground-level rain garden;
- removal of the external feeder pillar, with electrical equipment relocated internally within the Civic Centre;
- clarification that the proposed PV modules are dark grey/black rather than blue;
- additional visual representations, including the requested viewpoint from Avenue de Clichy looking south;
- further information demonstrating the relationship between structural posts, parking spaces and vehicle movements;
- consideration of the potential effects of reflected/polarised light on aquatic invertebrates; and
- ongoing investigation and engagement with Welsh Water regarding the existing foul sewer.

These revisions have materially reduced the potential visual and operational effects identified during the pre-application process while retaining the renewable-energy benefits of the development.

2 Site Description and Context

The site comprises an existing surfaced car park located within the urban centre of Merthyr Tydfil.

The surrounding area is characterised by:

- Civic and public buildings, including the Civic Centre and Law Courts
- Commercial and town centre uses
- Associated infrastructure including roads, footways and parking areas

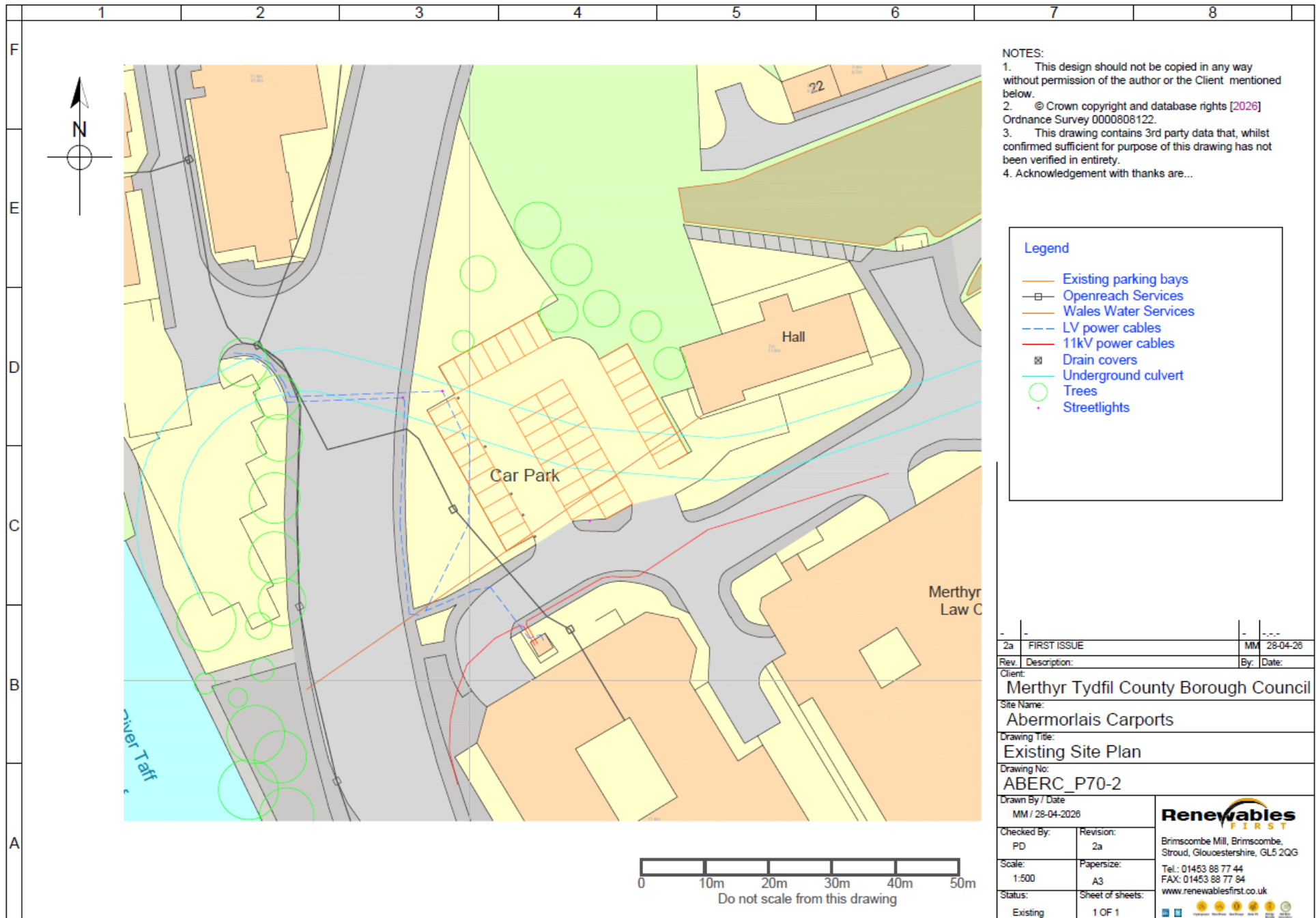
The character of the area is therefore **predominantly urban and developed**, with hardstanding and built form dominating.

The Existing Site Plan shows the current layout, including:

- parking bays
- drainage features
- underground culvert
- services and utilities

The site is not located within a Conservation Area and is approximately **200 m from the Town Centre Conservation Area**. The **nearest listed building is over 190 m away**, and there are no heritage assets within the immediate setting of the site.

There are no trees within the footprint of the proposed development.



3 The Proposed Development

The proposal comprises the installation of solar PV carports over an existing car park, as shown on the Proposed Site Plan.

Key elements include:

- One single-row cantilever carport
- One double-row cantilever carport
- Associated electrical infrastructure and cabling

The carports will:

- cover approximately 30 parking bays
- have a total canopy area of approximately 485 m²
- have a maximum height of 4.262 m
- provide vehicle clearance between 2.58 m and 3.604 m

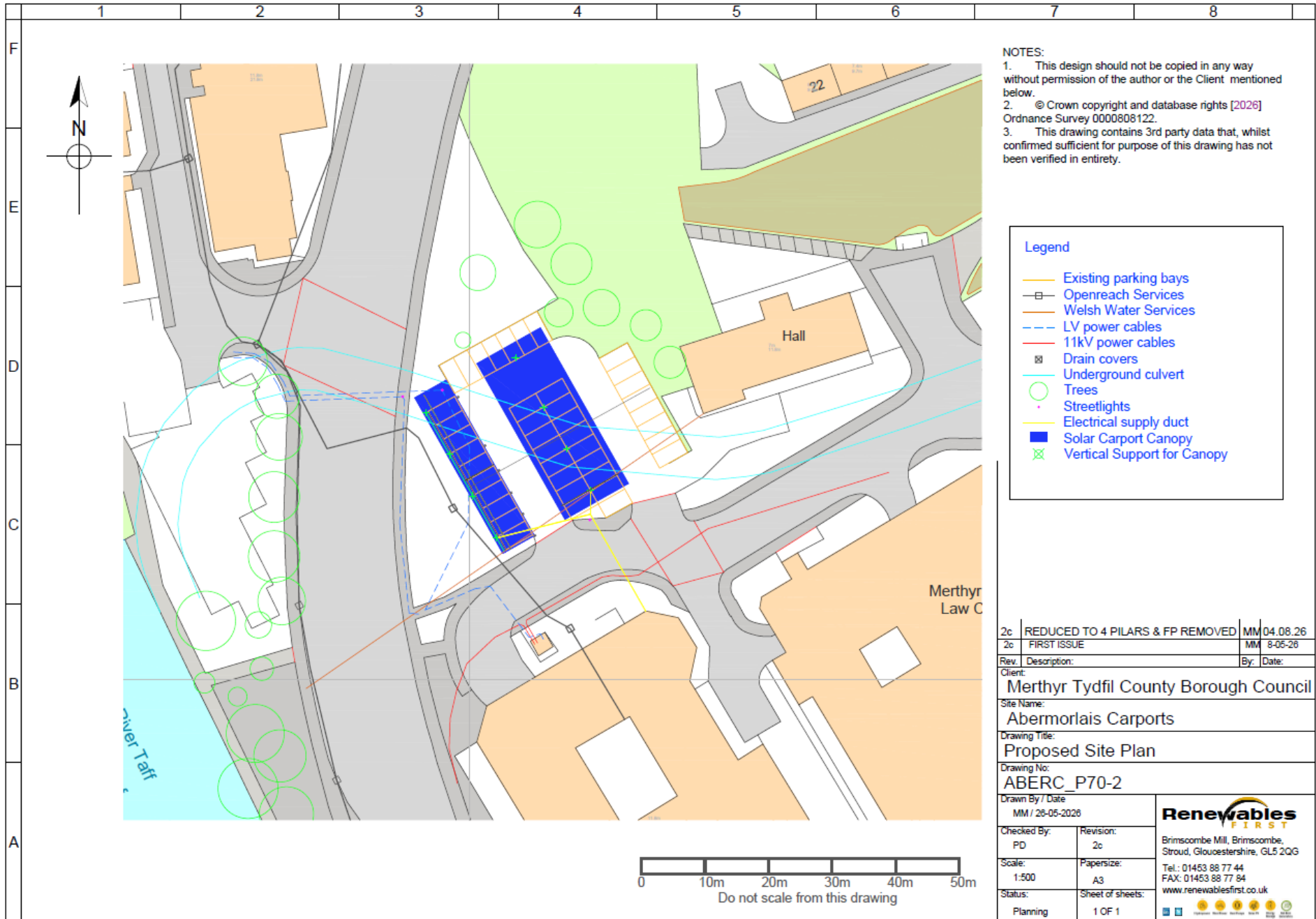
The structures are formed from galvanised steel, supporting dark blue-black PV panels with black frames.

The proposal results in the loss of one parking space, which has been agreed with the site operator.

The use of cantilever structures avoids side columns adjacent to vehicles, improving usability and reducing visual clutter. Manufacturer examples are provided within the supporting brochure – note that the manufacturer refers to cantilever carports as ‘one post’ systems in their brochure.



Similar double-row solar carport structure to that proposed in this application. The single-row carport also proposed is essentially one-half of what is shown for the double-row.



4 Planning Policy Context

The development aligns strongly with national and local planning policy.

Planning Policy Wales (Edition 12, February 2024)

PPW12 places strong emphasis on:

- decarbonisation
- renewable energy generation
- climate resilience

The proposal directly supports:

- Chapter 5 (Productive and Enterprising Places)
- Chapter 6 (Distinctive and Natural Places)
- Chapter 3 (Strategic and Spatial Choices)

by delivering on-site renewable energy within an existing urban location.

Future Wales: The National Plan 2040

Future Wales identifies the need to:

- maximise renewable energy generation
- support low carbon infrastructure
- prioritise development within existing settlements

The proposal represents:

- efficient use of previously developed land
- integration of renewable energy within existing infrastructure

Local Development Plan (Merthyr Tydfil CBC)

The proposal accords with local development plan policies SW4, SW11, EnW1, EnW3 and EnW4, supporting renewable energy development and sustainable design within settlement boundaries including:

- sustainable design
- renewable energy development
- efficient land use

The proposal is consistent with policies supporting:

- low carbon energy generation
- development within settlement boundaries
- use of brownfield land

5 Design Principles

Layout

The layout has been carefully designed to:

- integrate within the existing parking arrangement
- maintain circulation routes
- minimise disruption to existing use

The arrangement of single and double-row carports reflects:

- the geometry of the site
- existing parking configuration

Scale and Appearance

The scale of the development is appropriate to the site context.

Key characteristics:

- maximum height comparable to lighting columns and urban infrastructure
- open-sided structure reduces visual mass
- lightweight steel frame

The PV panels are:

- dark grey / black in colour
- manufactured using anti-reflective glass to minimise reflected light

The appearance is consistent with modern infrastructure within an urban civic setting.

6 Visual Impact

The development is located within an established urban environment characterised by civic buildings, roads, parking areas, street lighting and other urban infrastructure. While the proposed carports would introduce new structures into the car park, their open-sided form and relatively lightweight construction limit their apparent mass. The submitted visual representations demonstrate that the development would not be prominent in wider views and would not appear incongruous within the established town-centre context.

Some concerns were raised during the pre-application process in regard to visual impact which can be summarised as:

1. Potentially introducing a new visually dominant structure into the street scene
2. Obscuring views of woodland at north east of site
3. Blue colour of solar PV panels
4. Concerns about the viability of plants within the raised SuDS planters under double-carport
5. Visual impact of the feeder pillar
6. Reduction in 'natural surveillance' from carport structure and raised SuDS Planters
7. Requirement for visual representations to better assess visual impact

A number of these issues have been removed through discussion with the Planners and updating the design of the proposed system. As outlined below:

3. Blue colour of solar PV panels

This was a misunderstanding – the panels were shown as blue on the drawings to make the extent of them clear. The proposed modules are in fact black/dark grey in colour, thereby addressing the concern raised regarding blue panels.

4. Concerns about the viability of plants within the raised SuDS planters under double-carport

The raised SuDS planters under the double carport have now been removed from the design, and will be replaced with permeable tarmac with a porous water storage substrate below. This will still be a SAB approved SuDS design, but means that there will be no raised planters with plants in, so this concern is removed.

5. Visual impact of the feeder pillar

The design has been updated to locate all of the electric control equipment inside the plant room of the Civic Centre building, enabling the Feeder Pillar to be deleted from the design, so this issue is removed.

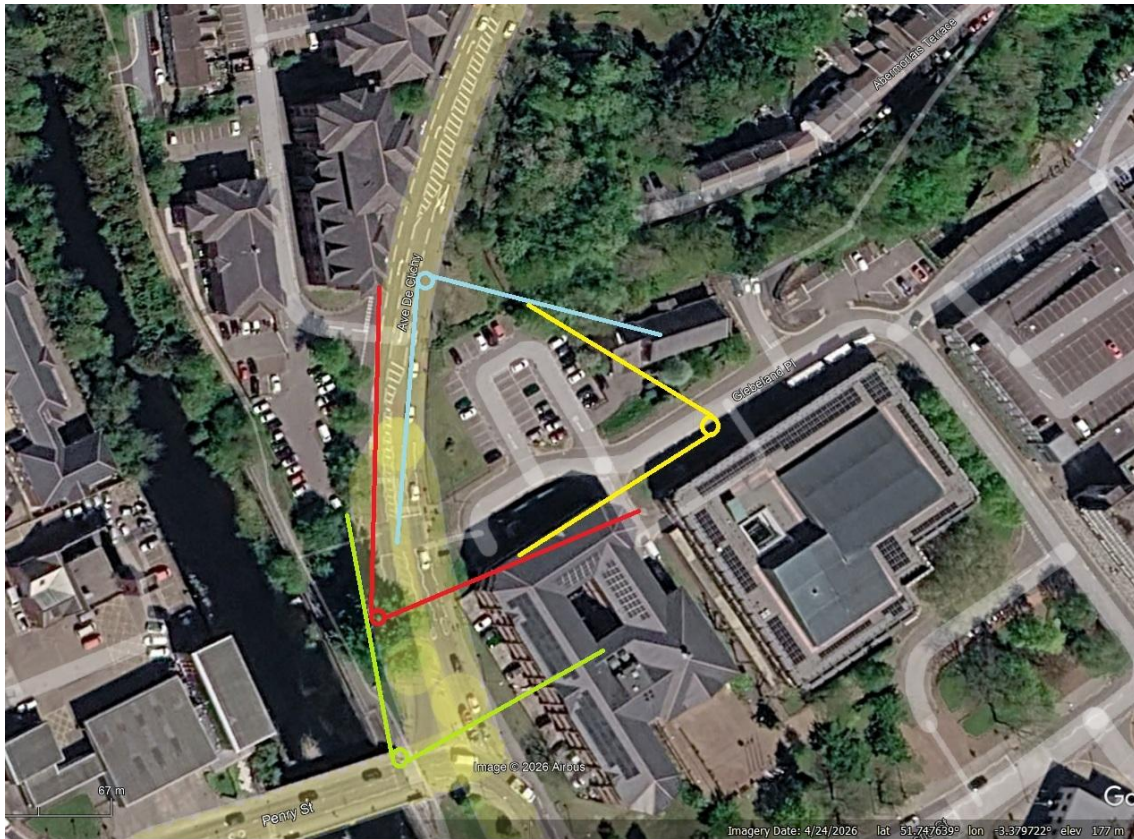
6. Reduction in 'natural surveillance' from carport structure and raised SuDS Planters

Views for drivers within the car park are only minimally affected by the carport structure itself, as the only visual barriers for drivers would be the four supporting pillars of the central double carport. As these supports have relatively modest dimensions of 488 mm (deep) x 190 mm (wide) and would be generally obscured by other vehicles, their impact is negligible.

The originally-proposed raised SuDS planters under the central double carport would have created a significant visual barrier down the centre of the car park which would impact both natural surveillance within the car park and disrupt views through the car park as well for passers-by. As the raised SuDS planters have now been removed from the design, this visual barrier has now been removed so we believe this issue has now been addressed.

7. Requirement for visual representations to better assess visual impact

This issue is addressed through four visual representations / photomontages from the viewpoints shown below. Note that the visual representations have also been uploaded as individual images as planning application Supporting Documents.



Viewpoint locations for the four photomontages provided.



Visual representation showing the solar carport from Penny St road bridge.



Visual representation showing the solar carport from Avenue de Clichy looking north-east.



Visual representation showing the solar carport from Avenue de Clichy looking south.



Visual representation showing the solar carport from Glebeland Place, outside the court building looking north-west.

The remaining issues are No.s 1 and 2, which are the more subjective issues to address.

We believe that the visual representations demonstrate that the solar carports are not visually intrusive and are relatively unobtrusive visually until you get very close to them. From the Penny St road bridge the solar carports are barely visible, particularly amongst the general visual clutter that surrounds urban car parks.

From Avenue de Clichy looking south, the view is generally obstructed by trees and undergrowth. The visual representation shows the principal gap through which the solar carports can be seen; even from this perspective, the structures are difficult to distinguish because they are viewed largely end-on against the backdrop of the Civic Centre and Law Courts.

Moving to the closer viewpoint from Avenue de Clichy looking north-east the solar canopy is more visible, but not in a dominant way. The visual impact has been noticeably improved by the removal of the raised SuDS planters because this makes it possible to see through the carport again to see the greenery behind the structure.

From Glebeland Place, outside the court building looking north-west, the solar canopies are clearly visible, but are still less dominant features than the buildings behind and are lower than the surrounding trees.

Overall, the submitted visual representations demonstrate that the proposed solar carports would remain visually subservient to the surrounding Civic Centre, Law Courts, mature trees and other established urban features. The open-sided design allows views through the structures and retains a visual relationship with the existing landscaping and woodland beyond. The proposed structures are therefore considered compatible with the established urban character of the site and its surroundings.

The pre-application response suggested shortening the central solar array in order to reduce its visual mass and improve views towards the trees and woodland to the north-east. This option has been carefully considered.

The submitted visual representations demonstrate that the principal improvement to views through the site has resulted from the removal of the previously proposed raised SuDS planters and feeder pillar. These changes substantially increase visibility beneath and through the open-sided canopy structure towards the existing vegetation beyond. Against this revised design, shortening the central array is considered likely to provide only a limited additional visual benefit.

Conversely, shortening the array would directly reduce the renewable electricity generation and associated lifetime carbon savings delivered by the development. The proposed extent of the array therefore represents an appropriate balance between maximising renewable energy generation from an existing developed site and minimising visual effects.

For these reasons, it is considered that retention of the proposed central array in its current form is justified and that the resulting visual effects are acceptable in the context of the site.

A Glint and Glare Assessment has also been carried out and this confirms:

- no glint or glare impacts on receptors
- no mitigation required

Overall, visual impact is considered low and acceptable.

7 Car Park Access and Movement Within

There will be:

- no change to site access
- no change to circulation routes

The development maintains:

- existing vehicle movements
- safe access arrangements

Vehicle clearance heights ensure:

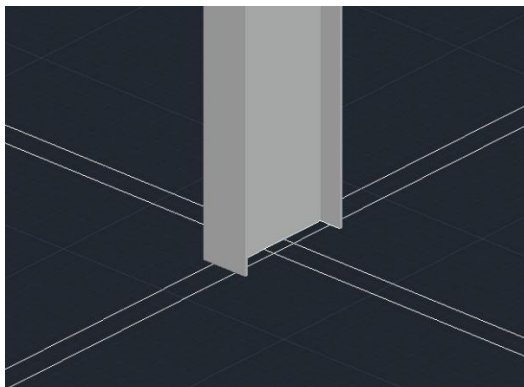
- continued usability for cars and small vans
- alternative uncovered spaces remain available for taller vehicles

No disabled parking spaces are affected.

Carport structural post positioning

The supporting posts of the solar carports have been positioned to cause minimal disruption to users. The supporting posts of the single, westerly carport will have the posts completely outside of the marked parking bays so should have no impact on the usability of the parking bays.

On the central, double solar carport the structural posts have been positioned at the intersection of adjoining parking bays, with their narrowest 190 mm dimension presented in the direction of vehicle movement. The arrangement therefore minimises encroachment into the usable parking area and maintains safe and practical access to the affected spaces. The location of the post at the intersection point of the parking bays should ensure a very low risk of contact with the carport structure.



Post dimensions: 488 mm x 190 mm
Line dimensions : 100 mm wide

The revised design has also removed the centrally located raised SuDS planters which previously reduced the available manoeuvring width. Consequently, the existing vehicle circulation and manoeuvring area between the parking rows is retained without reduction.

8 Drainage and Sustainable Drainage Systems (SuDS)

The development does not materially increase impermeable area. Surface water runoff from the carport canopies will be managed via a Sustainable Drainage System (SuDS).

Under the central solar carport the SuDS system will comprise permeable tarmac on a granular sub-base which will act as the SuDS attenuation trench. This will be linked via buried pipes to the SuDS system for the westerly single carport, which will discharge into a ground-level rain garden located on the grassed area to the west of the carport. Any overflow from the system will be linked to the existing drainage system.

Detailed design is being done by Merthyr Tydfil CBC's internal drainage team and will be approved by the SuDS Approval Body (SAB) in accordance with Schedule 3 of the Flood and Water Management Act 2010 and the Welsh Government Statutory SuDS Standards.

It is anticipated that SAB approval will be progressed in parallel with the planning application. A planning condition is proposed to secure SAB approval prior to commencement.

9 Flood Risk

A Flood Consequences Assessment (FCA) has been prepared in support of the application.

This confirms:

- the **site lies within Flood Zone 1 (low risk)**
- the development is appropriate

The proposal:

- does not alter ground levels
- does not displace floodwater
- will not increase flood risk elsewhere

The open structure ensures flood flows are not obstructed.

10 Ground Conditions and Constraints

The site includes:

- areas of made ground associated with historic culverting of Nant Morlais
- an underground culvert beneath the site

Foundation design will account for these constraints.

A ground investigation is proposed, including:

- trial pits
- plate load testing

Pad foundations are anticipated (approx. 2.1 m x 2.1 m x 1.05 m).

A CON29M report confirms:

- **no coal mining risk at the site**

Existing services have been identified and will be protected during construction.

Welsh Water foul water drain

There is a buried 150 mm diameter foul drain from the neighbouring Salvation Army building which crosses the site, and if the digital mapping received to date is accurate, passes less than 3 metres from one of the proposed carport structural posts, which may result in an objection from Welsh Water unless an acceptable arrangement is agreed.

At the date of the planning application submission we have engaged with Welsh Water and are in the process of getting them to trace the precise route of the foul drain. Once this is known we will either adapt the structural post positioning so that a 3 metre separation can be achieved, or agree a design to divert the sewer so that the 3 metre separation can be achieved. At this time we cannot be certain when this issue will be resolved, but we will address this issue to the satisfaction of Welsh Water. If this issue has not been resolved by the time that this planning application is determined, we would ask that a suitable planning condition be applied to the issued consent requiring that this issue is resolved before works commence.

11 Building Control / Structural Design Calculations

Through the pre-app process we have been informed that the structural design of the system will not be subject to building regulations, but the suitability of the foundations and structural design will be assessed during the planning application process by the council Engineering Team.

A ground investigation has been completed on-site and the detailed report is due to be issued shortly. The draft findings indicated generally suitable ground conditions and no contamination. Once the detailed report is issued, this will be sent to the German solar carport manufacturer and they will complete the structural foundation design. Once this is complete we will submit this to the LPA for their approval. If this process is not completed before this planning application is determined, we would ask that a suitable planning condition be applied to the issued consent requiring that this structural approval is obtained before works commence.

12 Energy and Sustainability

The development will deliver:

- 101.5 kWp installed capacity
- 90 kW AC output
- ~92.8 MWh annual generation

Approximately:

- **80% of electricity will be consumed on-site**
- remainder exported to grid

Carbon savings are estimated at:

- **17.94 tonnes CO₂ per annum**

The development contributes directly to:

- decarbonisation of council operations and reduction in grid demand

13 Ecology and Environmental Considerations

The site is existing hardstanding.

The proposal:

- does not require the removal of existing trees or established vegetation
- is not expected to result in significant adverse ecological effects

Noise and air quality impacts are limited to:

- short-term construction activity

Aquatic Invertebrates and Polarised Light

The potential for solar photovoltaic panels to attract aquatic invertebrates through reflection of horizontally polarised light has been recognised in ecological research and has been considered as part of the design process. The proposed development comprises a relatively small-scale urban solar carport installation within an existing hard-surfaced civic centre car park approximately 67 metres from the River Taff. The site is separated from the river by existing roads, buildings, landscaping and other urban infrastructure and does not represent a natural riparian environment.

The proposed JA Solar JAM54D40-470LR photovoltaic modules incorporate anti-reflective coated glass, as confirmed by the manufacturer's technical specification, which is designed to minimise reflected light whilst maximising transmission into the photovoltaic cells. Furthermore, the development comprises two discrete carport canopies rather than a single extensive ground-mounted solar array, reducing the extent of uninterrupted reflective surface.

Taking account of the scale of the proposal, the urban context, the existing highly modified environment, the separation from the River Taff and the use of factory anti-reflective photovoltaic modules, it is considered that the development is unlikely to result in a significant adverse effect on aquatic invertebrates or the ecological function of the adjacent river corridor. Consequently, no significant ecological impacts are anticipated in relation to this aspect of the proposal.

Ecological enhancement

The SuDS system that will be installed alongside the solar carports will include a ground-level rain garden located in the grassed area to the west of the solar carport. This will provide a modest but beneficial ecological enhancement to the local area.

14 Construction and Programme

Construction will be undertaken in phases.

Key elements:

- foundation works: approx. 8–10 days
- structure and solar PV installation: approx. 8–10 days
- electrical works: minimal disruption

The car park will:

- remain operational where possible
- experience temporary partial closures only

15 Operation, Maintenance and Decommissioning

The solar PV carports will be owned and operated as part of Merthyr Tydfil County Borough Council's estate and will be subject to routine inspection and maintenance throughout their operational life. Maintenance requirements are relatively limited and principally comprise inspection and maintenance of the PV modules, electrical equipment and supporting structures.

The costs associated with operation and maintenance will be met through the Council's normal asset management arrangements and are expected to be modest relative to the value of the renewable electricity generated by the system.

At the end of the operational life of the development, the solar PV modules, supporting steel structures and associated electrical equipment can be dismantled and removed. The principal components comprise recyclable materials including aluminium, glass and steel and will be reused or recycled where practicable in accordance with the waste-management requirements applicable at that time.

Responsibility for maintenance and eventual decommissioning will remain with the Council as landowner/system owner, thereby providing an appropriate mechanism for securing both ongoing maintenance and eventual removal of the development.

16 Conclusion

The proposed development represents a **sustainable and policy-compliant scheme** that:

- delivers renewable energy within an existing urban site
- supports Welsh Government decarbonisation objectives
- maintains existing site function and access
- has minimal environmental and visual impact

The proposal is therefore considered to be **consistent with national and local planning policy** and acceptable in planning terms. The development represents an appropriate and sustainable form of development on previously developed land and should be supported.